

# **DELIVERY OF THERAPEUTIC BIOLOGICALS FROM IMPLANTABLE TISSUE MATRICES**

## **Abstract**

Normal cells, such as fibroblasts or other tissue or organ cell types, are genetically engineered to express biologically active, anti-angiogenic compounds, in particular, thrombospondin-2. These cells are seeded into a matrix for implantation into the patient to be treated. Cells may also be engineered to include a lethal gene, so that implanted cells can be destroyed once treatment is completed. Cells can be implanted in a variety of different matrices. In a preferred embodiment, these matrices are implantable and biodegradable over a period of time equal to or less than the expected period of treatment, during which the engrafted cells form a functional tissue producing the desired biologically active agent for longer periods of time. These devices and strategies are used as delivery systems, which may be implanted by standard or minimally invasive implantation techniques, for delivery of anti-angiogenic molecules, especially thrombospondin-2, for the treatment of a variety of conditions that produce abnormal growth, including treatment of malignant and benign neoplasias, vascular malformations (hemangiomas), inflammatory conditions, keloid formation and adhesion, endometriosis, congenital or endocrine abnormalities, and other conditions that can produce abnormal growth such as infection.